IN THE SPECIFICATION

Please amend paragraph [0007] at page 3, line 12 to page 7, line 7, as follows:

Namely, the invention ~~in claim 1~~ provides a fluid measurement system including an imaging means for taking images of particles contained in a fluid to be measured at small time intervals, and an image processing means for comparing luminance pattern distributions at a plurality of consecutive time points obtained by the imaging means to measure a moving direction and a moving amount of a particle group, and analyzing a flow field of the fluid to be measured,

the imaging means including a long focus optical system being of a long distance type capable of imaging a fluid to be measured a long distance away, and

the system including a turbulence structure extraction means for extracting a turbulence structure of the fluid to be measured from the particle images obtained by the imaging means, wherein the image processing means measures a moving direction and a moving amount of the extracted turbulence structure to analyze the flow field of the fluid to be measured.

The invention ~~in claim 2~~ provides the fluid measurement system ~~according to claim 1~~ described above, wherein the turbulence structure extraction means includes a spatial frequency transformation means for transforming the image taken by the imaging means to spatial frequency components of luminance, a high-pass filter for leaving high frequency components at a predetermined frequency and higher from the transformed frequency components, and an image transformation means for transforming the frequency components after the filtering processing by the high-pass filter to an image.

The invention ~~in claim 3~~ provides the fluid measurement system ~~according to claim 2~~ described above, wherein the turbulent extraction means further has means for applying a window function to a signal of the image taken by the imaging means.

The invention ~~in claim 4~~ provides the fluid measurement system ~~according to claim 3~~ described above, wherein Blackman window is used as the window function.

The invention ~~in claim 5~~ provides the fluid measurement system ~~according to any one of claim 1 to claim 4~~ described above, further including a difference calculation means for obtaining, from the luminance pattern distributions at the plurality of consecutive time points obtained by the imaging means, a difference between the luminance pattern distributions at the plurality of consecutive time points as a difference luminance pattern distribution,

wherein the image processing means analyzes the flow field of the fluid to be measured using the difference luminance pattern distributions at a plurality of consecutive time points obtained by the difference calculation means.

The invention ~~in claim 6~~ provides the fluid measurement system ~~according to claim 1~~ described above, wherein the imaging means is of a long distance type capable of imaging a luminance pattern distribution by natural light reflection in the fluid to be measured a long distance away.

The invention ~~in claim 7~~ provides the fluid measurement system ~~according to claim 1~~ described above, further including a laser light input means for inputting a laser light in a sheet form into the fluid to be measured,

wherein the imaging means is of a long distance type capable of imaging a luminance pattern distribution by the laser light reflection in the fluid to be measured a long distance away.

The invention ~~in claim 8~~ provides the fluid measurement system ~~according to any one of claim 1 to claim 7~~ described above, wherein the imaging means is of a long distance type capable of imaging the fluid to be measured 10 m or greater and 20 km or less away from the set position of the imaging means.

The invention ~~in claim 9~~ provides a fluid measurement method, including the steps of:

taking images of particles contained in a fluid to be measured a long distance away at small time intervals by an imaging means including a long focus optical system,

comparing luminance pattern distributions of particle images at a plurality of consecutive time points obtained by the imaging means to measure a moving direction and a moving amount of a particle group; and

analyzing a flow field of the fluid to be measured from the moving direction and the moving amount of the particle group,

the method including the step of extracting a turbulence structure of the fluid to be measured and measuring the moving direction and the moving amount of the extracted turbulence structure to analyze the flow field of the fluid to be measured, when the number of particles contained in one pixel of the particle image obtained by the imaging means is plural.

The invention ~~in claim 10~~ provides the fluid measurement method ~~according to claim 9~~ described above, wherein the step of extracting a turbulence structure of the fluid to be measured includes the steps of transforming the image taken by the imaging means to spatial frequency components of luminance, performing filtering processing to leave high frequency components at a predetermined frequency and higher from the transformed frequency components, and transforming the frequency components after the filtering processing to an image.

The invention ~~in claim 11~~ provides the fluid measurement method ~~according to claim 10~~ described above, wherein the step of extracting a turbulence structure of the fluid to be measured further includes the step of applying a window function to a signal of the image taken by the imaging means.

The invention ~~in claim 12~~ provides the fluid measurement method ~~according to any one of claim 9 to claim 11~~ described above, further including the step of imaging a luminance

pattern distribution by natural light reflection in the fluid to be measured, and analyzing the flow field of the fluid to be measured.

The invention ~~in claim 13~~ provides the fluid measurement method ~~according to any one of claim 9 to claim 12~~ described above, further including the steps of inputting a laser light in a sheet form into the fluid to be measured, imaging a luminance pattern distribution by the laser light reflection in the fluid to be measured, and analyzing the flow field of the fluid to be measured.

The invention ~~in claim 14~~ provides the fluid measurement method ~~according to any one of claim 9 to claim 13~~ described above, further including the steps of imaging the fluid to be measured 10 m or greater and 20 km or less away from the set position of the imaging means, and analyzing the flow field of the fluid to be measured.

The invention ~~in claim 15~~ provides the fluid measurement method ~~according to any one of claim 9 to claim 14~~ described above, further including the step of analyzing the flow field of smoke, volcanic ash, water vapor, yellow sand, crowd, pollen or air 10 m or greater and 20 km or less away from the set position of the imaging means, as the fluid to be measured.

Please amend the paragraph at page 8, lines 19-22, as follows:

FIG. 7A is an original image of a parallel light source in which luminance information from a number of particles is recorded in one pixel similarly to FIG. 6A, and FIGS. 7B to [[7D]] 7E are images simulating the case when taken by the fluid measurement system;

Please delete the current Abstract at page 33, lines 1-13, and add in its place the new Abstract on the following page: